

**BOISE STATE UNIVERSITY****OFFICE OF THE PRESIDENT****MESSAGE FROM PRESIDENT BOB KUSTRA**

It is with real pleasure that I write to introduce this eleventh volume of the *McNair Scholars Research Journal*. The papers contained in this volume represent a remarkable breadth of scholarship that encompasses some of the best of what Boise State University has to offer. The Scholars, their faculty mentors, the staff of the McNair Program, and all of us at Boise State are very proud of this work.

Congratulations to all of the 2015 McNair Scholars for your achievements over the past year. In particular, I want to acknowledge the hard work and accomplishments of the senior Scholars whose research is represented in the papers in this publication. McNair scholars work with faculty mentors who are committed to the rigors of scholarship—a working relationship that both students and faculty describe as unique and beneficial. I also want to recognize and thank all of the faculty mentors who have worked with our McNair Scholars. It is your patience, guidance, and encouragement that facilitates the transformation of these students into scholars.

The Ronald E. McNair Post-Baccalaureate Achievement Program honors the memory and achievement of the late Dr. Ronald E. McNair, a physicist and NASA astronaut. Its goal is to encourage undergraduates from underrepresented backgrounds to emulate the academic and professional accomplishments of Dr. McNair by facilitating their pursuit of doctoral degrees and academic careers in teaching and research. The McNair Scholars Research Journal is evidence that the McNair Program provides a valuable opportunity for participants to explore research on significant issues. By being provided access to conferences and graduate schools they are given multiple opportunities to present their research and meet doctoral faculty. This formula has proven very successful for a vast majority of those who have participated in McNair since it began on our campus twelve years ago.

The research presented in this journal signals the arrival of new and rising scholars who will carry their talents, enthusiasm, and hard work ahead into graduate programs here and across the country. I hope that you will continue to aspire, achieve, and pursue your dreams.

Again, congratulations and best wishes,

Bob Kustra

MESSAGE FROM THE DIRECTOR

I am happy to be publishing our eleventh volume of the Boise State McNair Scholars Research Journal. The papers presented here are the outcome of the McNair Scholars' research projects conducted during their participation in the program and demonstrate the variety of excellent undergraduate research that can be produced when students are provided meaningful support through many collaborative efforts. This would not be possible without the tremendous support of faculty mentors who supervise and guide our scholars through their research endeavors.

This journal is the culmination of the research component of the McNair Scholars Program. By engaging in undergraduate research these scholars have developed important analytical and methodological skills, academic sophistication, and confidence that will aid in their success in graduate school. This journal also provides them an opportunity to have their research published and gain an early understanding of the importance of disseminating their work for others to utilize and of the role publishing may play in their future careers.

Maintaining a high standard of excellence throughout this process, these McNair Scholars have grown to become capable researchers and have clearly demonstrated their readiness to engage in the demands of research at the graduate school level. To each of them I would like to send a sincere thank you for making the choice to become a part of the McNair Scholars Program. Remember that you share a tremendous bond with all the McNair Scholars who have engaged in this process before you and I look forward to seeing your future engagement with those who will follow in your footsteps. It is fitting that your efforts culminate in your recognition through this journal.

I would like to also extend my deepest gratitude to all the faculty mentors who have guided and supported McNair Scholars throughout the life of our program. You have been instrumental in providing a solid research foundation giving them the ability to enter graduate school with confidence. And finally, a wholehearted thank you to Helen Barnes who has been working for our program since its earliest years. She has moved on to new work challenges but was a dedicated McNair Coordinator for 6 years and her hard work is reflected through the strength and success of our program and its participants.



Gregory Martinez